

Appl. No. 10/663,376
Amdt. dated December 23, 2004
Reply to Office action of August 23, 2004

In the Claims:

Claim 1 is amended herein. Claims 5 and 6 are canceled.

New claims 7 -11 are added. The remaining claims are not amended in this response.

1. (currently amended) A probe card of a measuring apparatus for a semiconductor device comprising: an electrically-conductive linear probe needle whose bottom end contacts with the device under test, a circuit board with which the upper end of the probe needle is connected electrically, an upper guide plate held horizontally and firmly near the middle point between the upper end and the center of said probe needle and having a guide hole to guide said probe needle, a lower guide plate held horizontally and firmly near the middle point between the center and the bottom end of said ~~prove~~ probe needle and having a guide hole to guide said probe needle, a rotary guide plate held horizontally and movably near the center of said probe needle and having a guide hole to guide said probe needle, an initial-position holding means to hold said rotary guide plate temporary and firmly at the initial position where said probe needle is straight, a movable holding means to hold movably said rotary guide plate at the position where the center of said probe needle bent, a driving means to ~~move~~ rotate said rotary guide plate in the horizontal plane.

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2. (original) The probe card as claimed in claim 1, wherein an arc-shaped guide slot is made in said rotary guide plate and said movable holding means is a fixed guide pin to be inserted in said guide hole.

3. (original) The probe card as claimed in claim 1, wherein an eccentric bearing is mounted in said rotary guide plate and said movable holding means is the fixed guide pin inserted in said eccentric bearing.

4. (original) The probe card as claimed in claim 1, wherein eccentric bearings are mounted in both of said upper and lower guide plates and said movable holding means is the fixed guide pin fixed in said rotary guide plate and inserted in said eccentric bearings.

5. (canceled)

6. (canceled)

7. (new) A probe card of a measuring apparatus for a semiconductor device comprising: an electrically-conductive linear probe needle whose bottom end contacts with the device under test, a circuit board with which the upper end of the probe needle is connected electrically, an upper guide plate held horizontally and firmly near the middle point between the upper end and the center of said probe needle and having a guide hole

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to guide said probe needle, a lower guide plate held horizontally and firmly near the middle point between the center and the bottom end of said probe needle and having a guide hole to guide said probe needle, a rotary guide plate held horizontally and movably near the center of said probe needle and having a guide hole to guide said probe needle, an initial-position holding means to hold said rotary guide plate temporary and firmly at the initial position where said probe needle is straight, a movable holding means to hold movably said rotary guide plate at the position where the center of said probe needle bent, a driving means to move said rotary guide plate in the horizontal plane, wherein an arc-shaped guide slot is made in said rotary guide plate and said movable holding means is a fixed guide pin to be inserted in said guide hole.

8. (new) A probe card of a measuring apparatus for a semiconductor device comprising: an electrically-conductive linear probe needle whose bottom end contacts with the device under test, a circuit board with which the upper end of the probe needle is connected electrically, an upper guide plate held horizontally and firmly near the middle point between the upper end and the center of said probe needle and having a guide hole to guide said probe needle, a lower guide plate held horizontally and firmly near the middle point between the center and the bottom end of said probe needle and having a guide hole to guide

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said probe needle, a rotary guide plate held horizontally and movably near the center of said probe needle and having a guide hole to guide said probe needle, an initial-position holding means to hold said rotary guide plate temporary and firmly at the initial position where said probe needle is straight, a movable holding means to hold movably said rotary guide plate at the position where the center of said probe needle bent, a driving means to move said rotary guide plate in the horizontal plane, wherein said rotary guide plate has a stepped stage to bend said probe needle at a first location along its length and to bend a second probe needle at a second location along its length.

9. (new) A method of testing using a probe card comprising the steps of:

inserting a plurality of probe needles through an upper guide plate a rotary guide plate and a lower guide plate, wherein ones of said probe needles have central portions adaptable to be bendable;

passing a fixed guide pin into a movable holding means;
rotating the rotary guide plate in a horizontal plane
causing the central, bendable portions of the probe needles to rotate with a swinging motion.

10. (new) A method of testing using a probe card according to claim 9 wherein said step of passing includes inserting the fixed guide pin into a curved guide slot.

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11. (new) A method of testing using a probe card according to claim 9 wherein said step of passing includes inserting the fixed guide pin into one or more eccentric bearings.

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